



LAWRENCE
LIVERMORE
NATIONAL
LABORATORY

LLNL Laser Operations Safety Audit Form

M. E. Ludwig

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Laser Operations Safety Audit Form

Form rev. 02/06

Auditor (LSO/DLSO/Other) _____ IWS/SP # _____ Audit Date: _____

Type of Audit: ☐ Annual ☐ New ☐ Amend ☐ Self-Assessment ☐ Other

Facility Name: _____ Building: _____ Rooms: _____

Responsible Individual: _____

Room Contact During Audit: _____

Classes of Lasers in this experiment/rooms: ☐ Class 4 ☐ Class 3b ☐ Class 3a ☐ Class 2 ☐ Class 1 embedded

**Recommended
Compliance Code**

Posted Documentation and Security Measures

- | | | | | | | | | |
|---|-----------------|--------------------------|---|--------------------------|---|--------------------------|----|------------|
| 1. Access door interlocks & status panel functional: <input type="checkbox"/> Key <input type="checkbox"/> Code | Comments: _____ | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.02 |
| 2. Access door signs current format, emergency contact current: _____ | Comments: _____ | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.08 |
| 3. Posting on ancillary doors: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.08 |
| 4. Current IWS/SP available: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | M-ES-PP.03 |
| 5. Eyewear requirements posted: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.02 |
| 6. Interlock check sheet available & current : _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.09 |
| 7. Alignment procedure (class 3b & 4): _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.10 |
| 8. Interlock check procedures available for complicated systems: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.09 |
| 9. Are two or more Class 3B lasers operation at different wavelengths: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | N/A |
| 10. If so, is it addressed in an IWS/SP: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | M-ES-PP.02 |

Laser unit safety controls:

- | | | | | | | | | |
|---|--|--------------------------|---|--------------------------|---|--------------------------|----|------------|
| 11. Laser classification labels present on commercial units: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.12 |
| 12. Protective housings in place: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.01 |
| 13. Beam shutters interlocked & functioning as per interlock check sheet: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.02 |
| 14. Interlock bypass functioning (≤ 15 seconds): _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.02 |

Engineering and Administrative Laser Safety Controls:

- | | | | | | | | | |
|--|--|--------------------------|---|--------------------------|---|--------------------------|----|------------|
| 15. Lasers & optics secured to table: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.17 |
| 16. Beam properly contained (Not a hazard to persons sitting or standing): _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.01 |
| 17. Beams enclosed where available: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.01 |
| 18. Noncombustible, non-specular beam barriers in place: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.01 |
| 19. Evidence of laser burn marks, if so how extensive: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.01 |
| 20. Adequate controls where beams leave tables or leave enclosures: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.01 |
| 21. All beams attenuated or low power when practical: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.01 |
| 22. Windows/door openings covered: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.13 |
| 23. Beams blocked from open by-passed doors: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.14 |
| 24. Non-essential reflective materials out of beam paths & surroundings: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.01 |
| 25. Administrative controls employed, barriers, demarcated: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.01 |
| 26. Upward directed beams are labeled: _____ | | <input type="checkbox"/> | Y | <input type="checkbox"/> | N | <input type="checkbox"/> | NA | S-IS-LA.15 |

Other Safety Measures

27. Laser eye exams by all personnel (3b and 4 lasers):	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	S-IS-LA.16
28. Proper eyewear available for all personnel, ODs OK?:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	S-IS-LA.03
29. Does one pair of eyewear cover all wavelengths?:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	N/A
30. Are separate pairs of eyewear used for different wavelengths?:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	N/A
31. Proper storage of eyewear, where?:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	S-IS-LA.18
32. Proper skin protection available & employed:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	M-ES-GE.05
33. Have workers completed required training?:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	M-ES-TR.01
34. Have workers completed and documented OJT for laser alignment work?	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	M-ES-TR.01
35. Have workers acknowledged the read and sign section of the IWS?:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	M-ES-PP.00
36. Collecting optics used (microscopes, binoculars, telescopes):	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	S-IS-LA.19

Non-beam Hazards:

37. High voltage hazards minimized:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	N/A
38. Optical tables bonded to building ground:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	S-IS-LA.05
39. Optical Tables seismically secured: (if no, how many?):	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	S-IS-LA.20
40. Housekeeping fire hazards minimized:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	S-IS-LA.01
41. Good housekeeping on optical tables:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	M-ES-GE.01
42. Fiber optic use:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	M-ES-GE.01
43. Container for fiber sharps:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	S-IS-LA.21
44. Fiber ends/connectors labeled:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	S-IS-LA.22
45. Fiber conduit labeled:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	S-IS-LA.22
46. Other non-beam hazards minimized:	<input type="checkbox"/>	Y	<input type="checkbox"/>	N	<input type="checkbox"/>	NA	N/A

Comments:

Auditor/LSO/DLSO signature _____ Date _____